



Advanced Credit Risk Management

Acquire cutting-edge knowledge and skills in a flexible and inspiring way

This unique online course from TU Delft in collaboration with Deloitte is for ambitious risk professionals, consultants and managers eager to master the most important models of credit risk management, and to understand and discuss the always-changing regulatory framework. Deloitte also organizes (optional) local Live Chapter Meetings to meet fellow participants and the instructors, learn current topics and discuss your questions.

The 10-week online course comprises four modules that offer an effective blend of theory and practice to make it challenging and valuable for your work. With the knowledge and experience gained, you will be able to advance your

current work tasks and support your future professional development in the field.

Dr. Pasquale Cirillo delivers the academic part of the course. He is a risk expert from the Department of Applied Mathematics at the Delft University of Technology (TU Delft), coordinator of the financial engineering specialization and experienced statistical consultant for major companies and institutions. Credit risk practitioners from Deloitte share knowledge on credit risk in practice to ensure the course is relevant for the industry. Five local Deloitte member firms (in France, Germany, Belgium, Austria and The Netherlands) share practical knowledge and their credit risk specialism.

COURSE HIGHLIGHTS

- Discussion of current and future regulatory frameworks concerning credit risk, from Basel II and III to IFRS 9.
- Review of the most relevant models for PD and LGD: from Moody's KMV to CreditMetrics, from logistic regression to survival analysis, with an emphasis on vital concepts like PIT and TTC estimates.
- Gain practical experience with accompanying learning modules created by Deloitte.
- Access course material 24/7, and learn at a time that suits you.
- Interact and collaborate with other credit risk professionals from all over the world.
- Enjoy diverse learning materials including video lectures, readings, exercises and assignments.
- Attend (optional) local Live Chapter Meetings for live discussions and question opportunities with Deloitte experts and fellow participants.

estimated effort

4-6 hours
week

ONLINE

24/7

ACCESS

PROFESSIONAL
EDUCATION
CERTIFICATE

COURSE FEE
€ 1500

Deloitte.

Deloitte is a worldwide leading professional services firm. Deloitte's financial risks management and consulting services have been serving financial institutions for years and have positioned themselves in the forefront of the financial industry.

 **TU Delft**

The Delft University of Technology (TU Delft) has a leading global reputation in science, design and engineering. TU Delft's online courses provide world-class education for those who wish to further their personal and professional development.

■ WHO SHOULD PARTICIPATE?

Anyone who is ambitious enough to seek a higher level of competence when dealing with credit risk. Participants may include:

- Credit risk professionals and managers who would like to understand what lies behind the formulas and models they use on a daily basis.
- Risk professionals who would like to increase their understanding of credit risk.

Prerequisites: Knowledge of basic risk management. Statistics and probability at university level (upper bachelor level). For those needing revisions, links to external resources will be provided. Professional business experience is a plus.

During the course, codes and examples will be developed using the R language (freely downloadable), but participants are free to use their preferred language.



■ LEARNING OBJECTIVES

- Gain knowledge about the latest regulatory developments, such as IFRS9, Basel III and the future "Basel IV".
- Develop a more solid understanding of the mathematics behind credit risk modeling, which will help you to better understand the foundation of the formulas and models you regularly use.
- Analyze the strengths and weaknesses of important credit risk models.
- Work with model risk and error quantification.
- Investigate the implications of dropping assumptions like Gaussianity.
- Explore open questions like small sample corrections and dependence modeling.

■ OPTIONAL LIVE CHAPTER MEETINGS

The Live Chapter Meetings take place to complement the online course and attendance is optional. The Live Chapter Meetings do not impact the grading. There are two Live Chapter Meetings, one kick-off meeting at the start of the course and one Live Chapter Meeting in spring/summer 2018.

■ SAMPLE VIDEO LECTURES

Visit the course page to watch [sample video lectures](#).

■ INSTRUCTORS

Dr. Pasquale Cirillo

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At TU Delft since 2012, Dr. Pasquale Cirillo received his Habilitation in Applied Statistics from the University of Bern, Switzerland, and his PhD in Statistics from Bocconi University, Italy. In addition to statistics, he studied economics at the Sant'Anna School of Advanced Studies in Pisa, Italy.

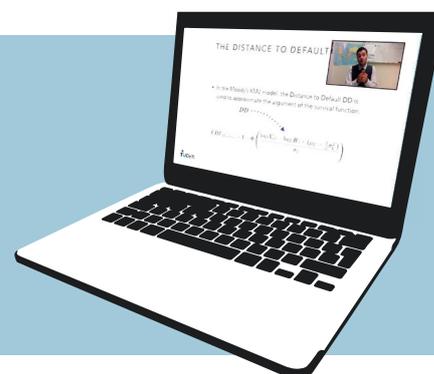
He is an expert in risk and extreme value theory, with applications in finance, economics and the social sciences. He has published in top international journals and collaborated with some of the most renowned international scholars in the field. For TU Delft, he has developed the successful MOOC "An introduction to credit risk management" with about 70,000 students from all over the world. On campus he is the responsible instructor of courses like financial mathematics, stochastic calculus and credit risk modeling. Over the years, as a statistical consultant, he has extensively collaborated with many international institutions, banks and insurance companies.

Deloitte professionals

Deloitte has a proven track record and global experience helping financial institutions to improve their model governance and model risk management. Deloitte works closely together with regulators and is influencing decisions through involvement in industry discussions and initiatives, which means that Deloitte is always up to date on upcoming changes in the regulatory landscape. Deloitte validates models and builds new models to quantify credit risk. For this Deloitte uses the latest technologies like artificial intelligence and neural networks, which have been proven to increase the quality of models.

■ QUALIFICATIONS

By completing this course you will earn a professional education certificate from TU Delft. With this certificate you are eligible to receive 3 Continuing Education Units (CEUs).



■ COURSE SYLLABUS

Module 1 – Credit Risk Environment (week 1-2)

- Course introduction
- Definition of credit risk
- Recap Basel II/III, IFRS9 and stress testing
- Current developments in IRB
- Current developments in IFRS 9
- Technological advances
- Model development

Module 2 – Probability of Default (PD) (week 3-5)

- Rating methodologies
- Linear Models intro and PD estimation
- Logistic regression
- Structured and mixed models
- Application: IRB capital requirements standardised formula
- Application: PIT and forward looking models for IFRS 9
- Low default portfolios
- Survival Analysis and GLM in Practice
- Implementation challenges

Module 3 – Loss Given Default (LGD) (week 6-8)

- Key concepts in default handling: clients, default, collateral and exposure
- Non performing loans management
- LGD model methodologies
- Application: uses of LGD
- Survival Analysis in Practice
- Cyclical adjustments
- Implementation challenges

Module 4 – Credit Risk Frameworks (week 9-10)

- Model use interactions
- Risk parameter interactions (PD and LGD correlation)
- Case study on advanced analytics, like machine learning techniques
- Data quality considerations
- EAD

■ ENROLL TODAY!

For more information about the online course you can visit our [website](https://www2.deloitte.com/nl/nl/pages/academy/events/advanced-credit-risk-management.html).

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